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APPLICATION NO.	FILING DATE	FIRST-NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/753,972	01/08/2004	Stephen A. Boppart	IPJ01-001-US	6450

43320 7590 04/11/2007  
EVAN LAW GROUP LLC  
600 WEST JACKSON BLVD., SUITE 625  
CHICAGO, IL 60661

EXAMINER
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SHAHRESTANI, NASIR

ART UNIT	PAPER NUMBER
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3737

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	04/11/2007	PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/753,972	<b>Applicant(s)</b> BOPPART ET AL.	
	<b>Examiner</b> Nasir Shahrestani	<b>Art Unit</b> 3737	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 08 January 2004.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-40 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-23 and 25-40 is/are rejected.
- 7) ☐ Claim(s) 24 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 12 July 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date <u>3/12/2007; 12/14/2004</u> . | 6) <input type="checkbox"/> Other: _____  |

**DETAILED ACTION*****Double Patenting***

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

**Claims 1-40** are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-25 of U.S. Patent No. 7,198,777. Although the conflicting claims are not identical, they are not patentably distinct from each other because they represent obvious alternate variations and groupings of the patented claims.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Toublan et al. (NPL – “Magnetically-inducible optical contrast agents for optical coherence tomography”).

Toublan et al. disclose optical contrast agents for optical coherence tomography (OCT). The microsphere contrast agents contain a suspension of iron-oxide particles (see entire document, especially, abstract and Figure 2). Optical coherence tomography is a technique that is capable of cellular resolution imaging and may have a role in early diagnosis of human malignancies. In the study conducted by Toublan et al contrast agents that are magnetically inducible and suitable for in vivo OCT were generated. The microspheres are 0.5 to 5 microns in diameter with a 50-Angstrom thick protein shell. The microspheres were generated to encapsulate liquid oil with suspended iron-oxide particles (see the Summary and Figure 1). The microspheres may be filled with other substances such as melanin or gold (page 2, first incomplete paragraph and page 3, last paragraph).

It would have been obvious to one of ordinary skill in the art to generate a method of forming an image by optical coherence tomography using the teachings of Toublan et al because both Applicant and Toublan et al disclose the use of optical coherence tomography for microparticles that contain a surface coating.

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Claims 22-40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sokolov et al. (U.S. 2004/0023415 A1), hereinafter referred to as “Sokolov”, in view of Lee et al. hereinafter referred to as “Lee” (NPL – “Engineered microsphere contrast agents for optical coherence tomography”).

Regarding claims 22 & 26, Sokolov teaches a method of forming an image by optical coherence tomography hereinafter referred to as “OCT” (par. 174), including exposing a patient to electromagnetic radiation (par. 139, 72), collecting reflected electromagnetic radiation to form an image (par. 14), and administering nanoparticles to enhance contrast of the image (abstract; par. 4, 73), wherein the metallic particles can be that of gold nanoparticles having a magnetic tip, as is the inherent property of gold (fig. 10; par. 71). Sokolov however does not specifically teach the use of the magnetic nanoparticles to collect backscatter from the induced electromagnetic radiation. In the same field of endeavor, Lee teaches “(an) optical contrast agent suitable for reflection or scattering-based optical imaging techniques, namely, OCT...these agents are biocompatible, are suitable for in vivo use, and produce enhanced backscatter that is detectable in highly scattering tissue” (pg. 1546, col. 1 lines 11-17). It would have been obvious to one of ordinary skill in the art at the time of invention to have modified the method as taught by Sokolov and to have incorporated the teachings of Lee in order to provide for improved acquisition of backscatter from the tissue to produce an image.

Regarding claims 23, 25 & 27-40, Sokolov teaches the use of gold nanoparticles that are 12 nm in diameter (par. 181) and that said nanoparticles also exhibit the ability to resonantly scatter visible and near infrared (par. 180) and further teaches gold nanoshell-polymer

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composites consisting of a gold shell (par. 74) and various cross-linking reagents and antigens (par. 90).

***Allowable Subject Matter***

Claim 24 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. The prior art of record does teach or suggest the use of gold nanoparticles or nanorods as a contrast agent for optical coherence tomography wherein the tip of said nanoparticles or nanorods are selected from the group consisting of cobalt, nickel, and iron.

***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nasir Shahrestani whose telephone number is 571-270-1031. The examiner can normally be reached on Mon.-Thurs: 7:30-5:00, 2nd Friday: 7:30-4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Brian Casler can be reached on 571-272-4956. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

  
NSS

3/6/2007

  
BRIAN L. CASLER  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 3700